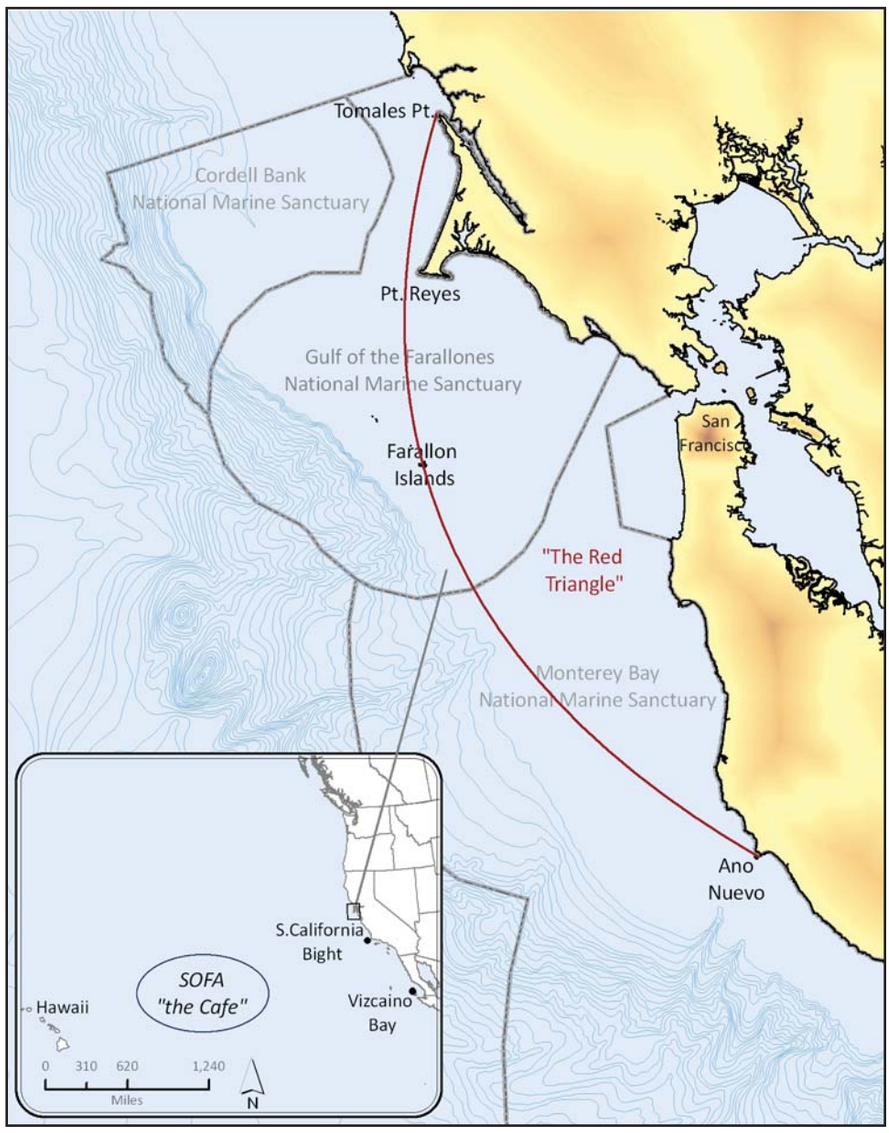
Protecting White Sharks

White sharks are listed on the International Union for Conservation of Nature (IUCN) Red List, as Vulnerable

Widely but sparsely distributed top predator with a very low reproductive potential (late maturity and small litter size) and high vulnerability to target and by-catch fisheries (commercial and recreational), some of which supply high-value products (fins, jaws, teeth) for international trade.[1]

Gulf of the Farallones National Marine Sanctuary protects the wildlife and habitats of one of the most diverse and bountiful marine environments in the world. This area is one of the top four major upwelling areas in the world (large upwelling ecosystems border the western boundary of the great continents). These biologically and nutrient rich waters provide sustenance for major populations of top predators, including white sharks.

White sharks depend on the rich waters of the sanctuary, and as apex predators play a key role in maintaining a balanced ecosystem. Each fall, adult and sub-adult white sharks frequent the waters of the sanctuary. Marine mammals are an important food source for adult and sub-adult white sharks, particularly elephant seals, which have high fat content. White sharks also feed on whale carcasses. They feed relatively infrequently and may only eat a few seals while in the sanctuary. It is important not to interfere during a predation event. White sharks expend a significant amount of energy migrating across the Pacific and need to store as much energy as possible during their short feeding season in sanctuary waters.



The Shared Off-shore Foraging Area (SOFA) or the "White Shark Cafe" is roughly 1,300 miles from the California coast. Adult white sharks are seen most frequently along the coast from Tomales Pt., south to Año Nuevo Island and west to the Farallon Islands, where concentrations of seals and sea lions are found. This area is known as the "Red Triangle."

Sanctuary Regulations to Protect White Sharks

To protect one of the most important white shark populations in the world, NOAA/Office of National Marine Sanctuaries has enacted regulations to ensure sharks are not disturbed by unauthorized activities.

Federal Regulations prohibit *(15 CFR Part 922)*:

1. Attracting a white shark anywhere in Gulf of the Farallones or Monterey Bay National Marine Sanctuaries.
2. Approaching within 50 meters (164 ft.) of any white shark within 2 nautical miles (2.3 miles; 3.7 km) of any of the Farallon Islands.

Attract or attracting means the conduct of any activity that lures or may lure any animal in the Sanctuary by using food, bait, chum, dyes, decoys (e.g., surfboards or body boards used as decoys), acoustics or any other means, except the mere presence of human beings (e.g., swimmers, divers, boaters, kayakers, surfers).

Protected in California

White sharks have been protected in California waters since January 1994. Title 14, California Code of Regulations, Fish and Game states that white sharks may not be taken.

However, the unintentional catch of sharks in the commercial fishing industry (long-line, purse seine, gillnets and mid-water trawl fisheries) threaten sharks, particularly juvenile white sharks in southern California.

Gulf of the Farallones National Marine Sanctuary
farallones.noaa.gov

White sharks are globally distributed apex predators

White sharks are found in temperate and sub-tropical waters. The best known coastal aggregations of white sharks include:

- Australia/New Zealand (Feb. to Oct.): Estimated population is 133[2] (juveniles, sub-adults)
- South Africa (Apr. to Oct.): Estimated population is 1,279[2] (juveniles, sub-adults)
- Northwest Atlantic (migrate between New England and Florida): Population size is unknown
- North East Pacific (2 aggregation sites)
  - * Tomales Pt., Pt. Reyes, Año Nuevo, Farallon Islands (Aug. to Nov.): Estimated population is 219[3] (adults, sub-adults)
  - * Guadalupe Island, MX (Jul. to Jan.): Estimated population is 135[4] (adults, sub-adults)

Population estimates are based on mark-recapture studies and models.

White Shark Stats

Life history stages
- Pups
- Young of the Year (YOY)
- Juvenile
- Sub-adult
- Adult

Sexually mature
Males: ~3.8m (12.5 ft); 9-10 yrs[5]
Females: ~4.5m (14.8 ft); 9-10 yrs[5]

Maximum expected age
~27 yrs[5]

Maximum length
6.4m[6] (21 ft)

Gestation period
Between 12 and 18 months[7]

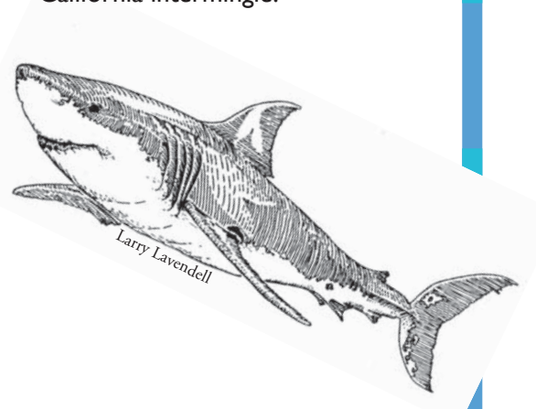
Average length
At birth: ~1.2-1.5m[7] (4-5 ft)
Young of the Year: <1.69m[8] (5.5 ft)
Juveniles: 1.7–3.49m[8] (5.6-11.45 ft)
Adults (CA observations): ~4.2m[9] (13.8 ft)

What's happening in the North East Pacific

In the North East Pacific, young of the year and juvenile white sharks are commonly found along the Southern California Bight and south into central Baja Mexico (Vizcaino Bay).

The North East Pacific population of adult and sub-adult white sharks migrates to an offshore area called the Shared Offshore Foraging Area (SOFA) or the "White Shark Café."

Scientists are unsure why they visit this area. This area is the only known location where adult and sub-adult white sharks from Mexico and California intermingle.



Common myths have vilified white sharks. Debunk the myth — we are more of a threat to them than they are to us. It is estimated that over 100 million sharks are killed annually by humans; on average, 10 people are killed each year, world-wide by sharks. You are 15 times more likely to be killed by a falling coconut than by a shark – about 150 people die each year from coconuts.

Threats

Most sharks are slow to reach reproductive maturity and produce only a small number of young each year, making them highly susceptible to the threats of fishing and other human activities.

According to the International Union for the Conservation of Nature and Natural Resources (IUCN), 32% of pelagic sharks and rays are threatened with extinction (critically endangered, endangered, or vulnerable) – 24% are near threatened; 19% are of least concern and 25% are data deficient.

Many sharks, including whites, are highly migratory and do not stay within jurisdictional boundaries, making comprehensive protection challenging. Threats include:

- Demand for shark fin soup
- Curio trade
- Incidental catch
- Recreational fishing
- Environmental pollutants
- Habitat deterioration and loss (including loss of prey species)
- Unregulated tourism

You can help

The information you share with others plays a critical role in the protection of the species. Learn more about white sharks and the threats they face!

- Be aware of efforts that protect sharks and the ocean.
- Get involved with organizations protecting sharks.
- Make educated choices about the products you buy. Choose seafood that is harvested sustainably.
- Bans, such as the one signed into law on October 7, 2011 in the State of California (AB 376) which provides added protection to sharks by banning the possession, sale, trade and distribution of shark fins in California.
- Be aware of international treaties that aim to facilitate cooperation for a more holistic approach to conservation.

[1] Compagno, L.J.V. 1984. Sharks of the world: an annotated and illustrated catalogue of shark species known to date. Rome, United Nations Development Programme.
[2] Dudley, S.F.J. 2009. A review of research on the white shark in southern Africa. International White Shark Symposium. Honolulu, Hawaii. February 9, 2009.
[3] Chapple, T.K., Jorgensen, S.J., Anderson, S.D., Kanive, P.E., Klimley, A.P., Botsford, L.W., Block, B.A. 2011. A first estimate of white shark, Carcharodon carcharias, abundance off Central California. Biology Letters. August 23, 2011. 7:581-583; published online before print March 9, 2011, doi:10.1098/rsbl.2011.0124.
[4] Sosa-Nishizaki, O. 2009. Estimating the white shark population in Guadalupe Islands, Mexico, based on mark-recapture data. International White Shark Symposium. Honolulu, Hawaii. February 8, 2009.
[5] Cailliet, G.M., Natanson, L.J., Welden, B.A., and Ebert, D.A. 1985. Preliminary studies on the age and growth of the white shark, Carcharodon carcharias, using vertebral bands. Memoirs of the Southern California Academy of Sciences 9: 49B60.
[6] Ebert, D. 2003. Sharks, rays, and chimaeras of California. University of California Press.
[7] Francis, M.P. 1996. Observations on a pregnant white shark with a review of reproductive biology. In: pp. 157-172, A.P. Klimley and D.G. Ainley (eds), Great White Sharks. The Biology of Carcharodon carcharias. Academic Press, San Diego.
[8] Lowe, C.G. 2009. Historic fishery interactions with white sharks in the Southern California Bight. International White Shark Symposium. Honolulu, Hawaii. February 8, 2009.
[9] Jorgensen S, Reeb C, Chapple T, Anderson S, Perle C., Van Sommeran, S.R., Fritz-Cope, C., Brown, A.C., Klimley, A.P., Block, B.A. 2009. Philopatry and migration of Pacific white sharks. Proceedings of the Royal Society B.